CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

An ISO 9001:2008 Certified Company

NABL - Accredited Laboratory as per ISO / IEC-17025 : 2005

JAS-ANZ BSCIC ISO 9001 REGISTERED

Job No: CTCE/BBMP/KRIDL/W.No.13/BM/Agg.G/2018-19 26.04.2018

TEST REPORT ON GRADATION OF AGGREGATES

* Customer	:	**Asst. Executive Engineer,** Dasarahalli Project Division, BBMP, Bangalore.
* Agency	:	**Technical Manager,** KRIDL, Bangalore.
* Name of work	:	Improvements of asphalting at Kalyana Nagara and surrounding area in Mallasandra Ward No.13, Shettyhalli Sub Division, BBMP, Bangalore.
* Reference	:	BBMP/EE/PD/WO/000032/2017-18 Dated: 22.02.2018
* Sample ID	:	Hot Mix Plant, Bangalore
Technical Reference	:	IS : 2386(Part -1)-1963 (RA-2011)
* Type of Mix	:	Bituminous Macadam
Date of Testing	:	26.04.2018

Total Weight of Sample: **5200** gm

Sieve Size, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	Grade-II As per MORTH	Remarks
26.5	0	0	0	100	100	Gradation satisfies Grade II MORTH Table 500-4 specification
19	375	7.21	7.21	92.79	90-100	
13.2	1565	30.10	37.31	62.69	56-88	
4.75	1640	31.54	68.85	31.15	16-36	
2.36	955	18.37	87.21	12.79	4-19	
0.3	245	4.71	91.92	8.08	2-10	
0.075	127	2.44	94.37	5.63	0-8	

Total Weight of Sample: **5250** gm

Sieve Size, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	Grade-II As per MORTH	Remarks
26.5	0	0	0	100	100	Gradation satisfies Grade II MORTH Table 500-4 specification
19	325	6.19	6.19	93.81	90-100	
13.2	1540	29.33	35.52	64.48	56-88	
4.75	1637	31.18	66.70	33.30	16-36	
2.36	925	17.62	84.32	15.68	4-19	
0.3	530	10.10	94.42	5.58	2-10	
0.075	118	2.25	96.67	3.33	0-8	

* Information is furnished by the Customer/Representative

Note:

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⇒The results indicated above are based on the tests carried out on the samples received in the laboratory.

⇒Any Query regarding the report must be reported within 30 days from the date of testing.

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Building & Highway Material Testing Laboratory

NABL - Accredited Laboratory as per ISO / IEC-17025 :2005

T-2377

Job No.: CTCE/BBMP/KRIDL/W.No.13/CSR-03/592d/QB(BC)/2018-19 25.04.2018

TEST REPORT ON DETERMINATION OF BITUMEN CHARACTERISTICS

* Customer	:	**Asst. Executive Engineer,** Dasarahalli Project Division, BBMP, Bangalore.
* Agency	:	**Technical Manager,** KRIDL, Bangalore.
* Name of work	:	Improvements of asphalting at Kalyana Nagara and surrounding area in Mallasandra Ward No.13, Shettyhalli Sub Division, BBMP, Bangalore.
* Reference	:	BBMP/EE/PD/WO/000032/2017-18 Dated: 22.02.2018
* Sample ID	:	Bitumen
Source/ Location	:	Hot Mix Plant, Bangalore.
Sample Received on	:	23.04.2018
Period of Testing	:	23.04.2018 to 25.04.2018

The results of the tests conducted on the bitumen sample are as follows:

Sl. No	Description	Test Method as per IS	Test Result	Requirement as per IS:73:2013
1	Penetration at 25 °C, 1/10 mm	IS :1203 -1978 (RA-2014)	63	60 to 70
2	Softening point, °C	IS :1205 -1978 (RA-2014)	47	Min. 45
3	Ductility at 27°C, cm	IS :1208 -1978 (RA-2014)	100 >	Min. 50
4	Flash Point, °C	IS :1209 -1978 (RA-2014)	290	Min. 220

* Information is furnished by the Customer/Representative

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Job No.: CTCE/BBMP/KRIDL/W.No.13/BC/AIV/2018-19 25.04.2018

TEST REPORT ON IMPACT VALUE OF AGGREGATES

* Customer	:	**Asst. Executive Engineer,** Dasarahalli Project Division, BBMP, Bangalore.
* Agency	:	**Technical Manager,** KRIDL, Bangalore.
* Name of Work	:	Improvements of asphalting at Kalyana Nagara and surrounding area in Mallasandra Ward No.13, Shettyhalli Sub Division, BBMP, Bangalore.
* Reference	:	BBMP/EE/PD/WO/000032/2017-18 Dated: 22.02.2018
* Sample ID	:	Hot mix plant, Bangalore.
* Type of Mix	:	Bituminous Concrete
Technical Reference	:	IS: 2386 (Part- 4)-1963 (RA-2011)
Date of Testing	:	25.04.2018

Sl No.	Details	Trial No.		Average
		1	2	
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	385	389	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	84	82	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	301	307	
4	Aggregate Impact value = percent fines 100* (W2/W1) percent	21.82	21.08	21.45

*Information is furnished by the Customer/Representative.

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Comments:

→ Maximum allowable Aggregate Impact value for Bituminous Concrete is 24%

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Job No.: CTCE/BBMP/KRIDL/W.No.13/BC/Shape.T/2018-19 25.04.2018

TEST REPORT ON FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

* Customer	:	**Asst. Executive Engineer,** Dasarahalli Project Division, BBMP, Bangalore.
* Agency	:	**Technical Manager,** KRIDL, Bangalore.
* Name of Work	:	Improvements of asphalting at Kalyana Nagara and surrounding area in Mallasandra Ward No.13, Shettyhalli Sub Division, BBMP, Bangalore.
* Reference	:	BBMP/EE/PD/WO/000032/2017-18 Dated: 22.02.2018
* Sample ID	:	Hot mix plant, Bangalore
Technical Reference	:	IS : 2386(Part -1)-1963 (RA-2011)
* Type of Mix	:	Bituminous Concrete
Date of Testing	:	25.04.2018

Sl.No.	Description	Result
1	Flakiness Index	12.45%
2	Elongation Index	13.69%
3	Combined Flakiness & Elongation Index	26.14%

*Information is furnished by the Customer/Representative.

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Comments:

→ Maximum allowable Flakiness & Elongation Index for Bituminous Concrete is 30%

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Job No.: CTCE/BBMP/KRIDL/W.No.13/BC/Stripping/2018-19

27.04.2018

TEST REPORT ON STRIPPING VALUEOF ROAD AGGREGATES (STATIC IMMERSION TEST)

* Customer	:	**Asst. Executive Engineer,** Dasarahalli Project Division, BBMP, Bangalore.
* Agency	:	**Technical Manager,** KRIDL, Bangalore.
* Name of Work	:	Improvements of asphalting at Kalyana Nagara and surrounding area in Mallasandra Ward No.13, Shettyhalli Sub Division, BBMP, Bangalore.
* Reference	:	BBMP/EE/PD/WO/000032/2017-18 Dated: 22.02.2018
Technical Reference	:	IS: 6241
* Type of Mix	:	Bituminous Concrete
Date of Testing	:	27.04.2018

Type of binder	: 60/70
Percentage of binder used	: 5.00% by wt.
Total weight of aggregate	: 200 g
Total weight of binder	: 10.00 g
Temperature of water-bath	: 40° C

Observation Number	Stripping, Percentage	Average, Percentage	Average Retained Coating, %
1	3.3	3.30	96.70
2	3.4		
3	3.2		

*Information is furnished by the Customer/Representative.

Comments:

→ Minimum allowable Aggregate retained coating for Bituminous Concrete is 95%

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